Bluenose II – Part 2

Planking the Hull

Planking is time consuming and requires care, but it can be very satisfying to watch your creation take shape. It is also the point at which many would-be ship modelers throw up their hands in frustration and relegate the kit to the closet because of inadequate instructions.

There are many books on ship modeling, most of which include some information on planking. One booklet, called Planking the Built-up Ship Model by Jim Roberts, is completely dedicated to planking. This booklet is available in electronic form on the Ships in Scale CD set (1990 to 1999) or in printed form from Model Expo (Part Number MSB113). It is considered by many to be the definitive text on planking and shows the modeler how to adapt planking techniques as used on real ships to model ships. I encourage you to acquire and read this booklet.

Jim Robert's methods, however, will require you to buy additional material for planking because the strips provided with the kit are too narrow. Instead, we're going to use a simplified method of planking that will give results that look similar but will be somewhat easier for the first time.

This kit is designed to be double-planked, with a thick layer of planking over the bulkheads to provide a solid surface for a thin layer of finish planking. Since we're going to be painting the model, there are few reasons to double plank. By the end of the first layer, you'll likely find you're more than ready to move on to something else. If you don't plan to paint your hull, then, of course, you'll have to double plank and, if you mess up the first layer so badly you just can't stand to look at it, then you may consider double planking even if you're going to paint. There are other details such as planking butts and stealers that are best executed in a second layer but we won't be incorporating those details in this model. Even if you know for certain that you're going to double plank, try to apply the first layer carefully – the extra practice will make the second layer that much better.

As you look at your hull, you can see that it's shaped rather like half a barrel – wide in the middle and narrower at the ends. The staves of a barrel are also wide in the middle and narrow at the ends. Our planking will have a similar look – planks that are wide at midships and narrower at the ends. (As we'll see later, there's an exception to this at the stern post, but don't worry about that just yet.) With the 5mm wide planking material provided in the kit, we will be able to fit 18 planks along the midships bulkhead (8). Because of the hull design of Bluenose II, we won't have this many planks at the tip of the bow (bulkhead 2) and we'll have several more than this at the stern (bulkhead 13). Figuring out how to accomplish this can be a bit daunting to the first-time modeler.

Placing the First Planking Batten

We'll make things a bit easier by dividing the hull into smaller areas called planking belts. These will give us areas of the hull to plank where the number of planks within the

belt is the same along the fore-to-aft length of the belt. Belts are defined by planking battens – just strips of the kit-supplied planking material.

Before starting your planking, be sure to read and follow instruction A.4 in your kit manual to shape the bulkheads so the planks will lie on them correctly. As you test to see how you're doing, try to lay the test plank in the general direction the final plank will lie. If your test plank is at the deck level at the bow and at the bottom of the keel at the stern, you won't get an accurate idea of how well the bulkheads are faired. A piece of 100 grit sandpaper wrapped around a dowel works well for sanding the concave sections of the hull at the stern. If you sand off too much of a bulkhead and your test plank dips down at that bulkhead, glue a piece of scrap onto the bulkhead to fill out the dip and try again. This whole process of fairing the bulkheads is time consuming, but quite important. It will determine how well your planks lay and how smooth the hull will look in the end. So take your time and do a good job of it.

Now that the hull framework is fair, let's lay the first planking batten. Place a pencil mark on each bulkhead -- 4 mm down from the top of the forward deck and 8 mm down from the top of the rear deck. From that point, mark down 7 full plank widths (35mm) along bulkhead 8. That will be the top of your planking batten at that bulkhead.

At the bow, you still want 7 planks in this belt, but they will have to be narrower because of the shape of the hull. I made mine 1/2 of the full plank width. So, at bulkhead 2, set your planking batten at 17.5 mm from the mark below the deck.

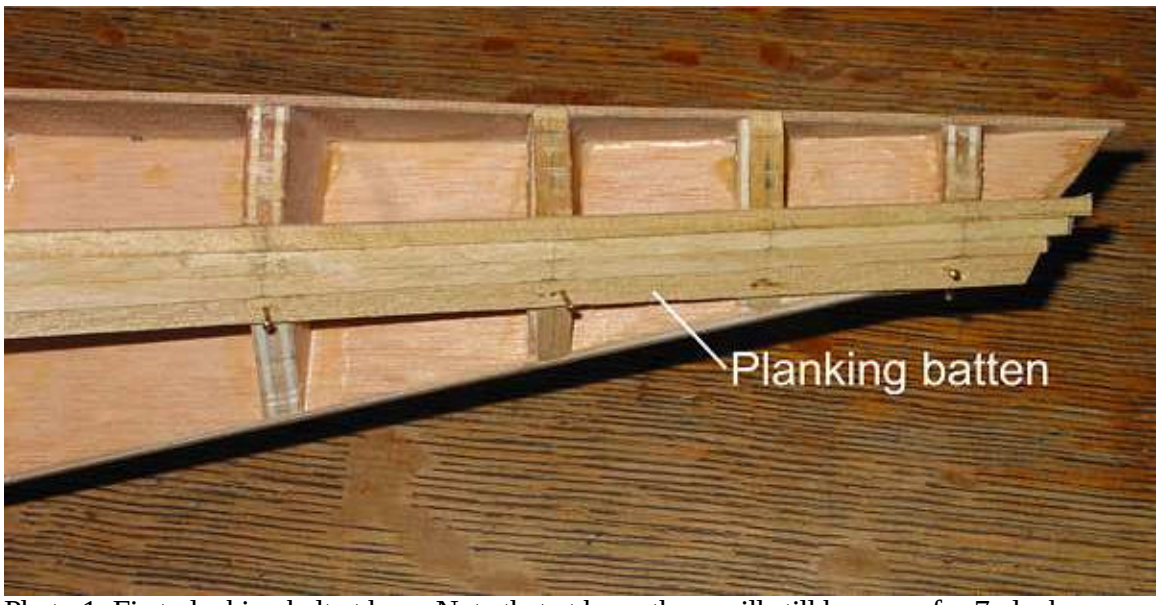


Photo 1: First planking belt at bow. Note that at bow, there will still be room for 7 planks. Planking batten will be removed after planking the first belt.

Do the same at the stern, being sure to take into account that bulkhead 13 curves considerably. Here's it's best to mark 17.5 mm on a piece of paper and lay the paper along the curve of the bulkhead to make your batten placement mark. You'll probably

have to fiddle around with the batten some to get a nice fair run, but try to get those 3 points pretty close. Hold the batten with nails but DON'T glue the batten on.

Place another batten on the other side. Your hull may not be perfectly symmetrical on both sides. Frame 8 is key - you want 7 full plank widths to the top of the batten. At the bow and stern, make sure your second batten is in the exact same location as the first. If the in-between bulkheads are a bit off and don't exactly match the opposite side, don't worry about it. This will be corrected as we measure each plank. Write the number of each bulkhead on the edge of the bulkhead (there's plenty of room at the top – just below the false deck).

Photo 2: Space battens evenly on both sides

Marking the Planks

Hold one of the 1.5 x 5 x 600mm planks along the marks on the bulkheads just below the deck and, being sure you leave enough excess at both ends, shorten the plank to the rough length. Mark each bulkhead location on the plank. The key is to be able to put the plank back into the same location after you've shaped it. Put the bulkhead numbers on the planks as well so you don't get confused about where you're measuring.

There are several methods of figuring out the width of the plank at each bulkhead. The low-tech, low-cost way involves using a "tic strip". A tic strip is simply a piece of paper on which you mark the length of each bulkhead within the planking belt. You lay the paper along the outside of the bulkhead, make a tic mark at the top of the bulkhead (your pencil line 4mm or 8mm below the deck) and another mark at the top of the planking batten. This gives you the exact length of each bulkhead. Then, simply divide the space

by the number of planks in the belt and you have your width for that plank at that bulkhead.

Dividing the space by the number of planks can be done mathematically, but that can be somewhat inaccurate. Instead, on a piece of paper, draw a 2-inch horizontal line across the bottom and a perpendicular 3-inch centerline (if you have a sheet of graph paper, it will make this much easier). Divide the horizontal line into 8 equal ¼-inch sections. Number the resulting marks 1 thru 9. From each mark along the horizontal line, draw a line to the top of the vertical line so that you end up with a triangular shaped object on your page. (Try to be pretty accurate when you draw this.)

Dia. 1: Triangle for equally dividing segments

Lay your tic strip over the triangle and move it up or down until the tic marks are aligned with two of the legs of the triangle. If you want to divide your tic strip into 5 segments, use legs 1 and 6. Be sure to keep the tic strip parallel with the horizontal base of the triangle. Once all is aligned, you can mark the divisions on your tic strip from the legs of the triangle.

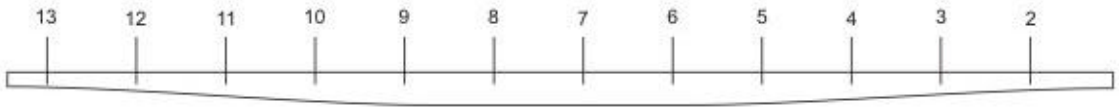
Let's go through this whole process on bulkhead 6. Lay out your tic strip along the bulkhead and mark top and bottom. Lay the tic strip on your planking triangle with one mark on leg 1 and the other on leg 8. This will show you the 7 equal segments. Mark them on your tic strip. Transfer the width of one segment to your plank (use dividers) where you marked bulkhead 6 and you have the required width of the plank at that bulkhead. Repeat this procedure at each bulkhead and you'll see how your plank needs to be tapered. I repeat this process for every plank.

A similar, but slightly different approach that some modelers prefer is to mark the plank widths directly on the bulkheads, then transfer the measurements as needed to the planks. This certainly means less measuring with the tic strip, but you'll likely discover that your cutting won't be that perfect and error will creep in with every plank. It's more work to measure each plank, of course, but at least for me, it seems to provide better results in the long run. Try both methods and use whichever works best.

There is a more high-tech way of measuring plank widths, using a set of proportional dividers. These dividers are relatively expensive, however. They are faster and likely more accurate than dividing tic strips although, on curved bulkheads, you'll still need to get the exact overall length with a tic strip. It's probably best to just use the tic strip method for your first model. Then, if you are sure you're going to stick with the hobby, consider buying the dividers. If you can borrow some from a fellow modeler, give them a try and see how they work for you. You'll find other uses for the dividers, so they can be a worthwhile investment.

Cutting the Planks

Once you've marked your plank widths at each bulkhead, you need to trim off the excess. Leave the top edge of the plank straight and cut the tapers into the bottom edge. Do this consistently on every plank. Again, this is a somewhat simplified method of tapering planks and will cause some planks to be bent edge-wise to follow the curve of the deck line (known as the sheer). This typically is not done much on real ships. Instead, the curve is cut into the plank (a process called spiling). If we try to bend a plank that is a full 5 mm wide along its entire length to match the deck sheer, the plank will try to buckle somewhere around bulkhead 7 or 8. When we cut the taper, we reduce the mass of the plank so that it bends more easily and doesn't buckle.



Dia. 2: Typical plank taper

When the first plank is marked and shaped, put a small drop of medium CA at bulkheads 8 and 9. You can start from the top and work down or vice versa – it makes no difference. Align the plank on the bulkheads and hold it until the CA has set (just a few seconds). Then, move forward a couple frames at a time, making sure the plank is right up against the pencil marks below the deck. Repeat forward and aft until you've glued the plank at each bulkhead. Then, mark and cut a plank for the other side and glue it on. Some books will suggest that you make a copy of the first plank and use the copy on the second side. That's fine if you're dead certain that all your bulkheads are symmetrical (and it's probably fine for the first plank). But if your bulkheads are a bit off, error will creep in and the planks won't match up. It's really best to mark and cut each plank individually.

Mark, cut, and fit the rest of the planks. For the second and subsequent planks, put yellow glue along the edge (to hold it to the plank below it) and hold the plank to the bulkheads with medium CA. Do the same thing as with the first plank - start with glue on 8 & 9, then move outward a few bulkheads at a time, using yellow glue and CA as you go along. As you're placing your planks on opposite sides, make sure they match each other at the bow. If you look bow on, plank 1 on the port side should be at the same height and the same width as plank 1 on the starboard side. Repeat for the other 6 planks.

You may have noticed that we have used full-length planks running from stem to stern. This too, is a simplified method of planking. On a real ship, planks were rarely more than 20 to 30 feet long. At our model's 1:75 scale, that means planks should be less than 5 inches long. Laying planks in scale lengths means working out proper planking runs in advance, according to the rules of planking. This is very difficult to achieve when single planking with the plank-on-bulkhead method of building because the bulkheads are simply too far apart. If you want to do scale-length planking, do it on the second layer since you'll have a solid surface to plank over and you can pretend there are frames in between bulkheads. If you want to do only one layer of planking, you can fill the voids between bulkheads with balsa, sanded smooth to give you a solid hull, then mark more frames on the balsa before laying your planks. I recommend you save that amount of effort for a later model. Some modelers score planking butts after laying full-length planks. Again, for your first model, this is probably not worthwhile, but suit yourself. I'd rather see you get through the entire process of building a ship model than getting into some of the minute details of planking butts.

Placing the Second Planking Batten

You're now ready to place your second batten. Owing to the shape of the hull, you won't be able to carry all the planks in this belt all the way forward. You've already taken up most of the space at bulkhead 2. In fact, there should be room there for just one more plank.

Remove your first planking batten, then measure down 5 full plank widths from the lower edge of the bottom-most plank (7) on bulkheads 8 and 9. Now, come up just a fraction (about 1 mm) on each bulkhead, and that will be the top edge of this batten. The reason we moved the batten up just a bit is because, in the middle of the space between bulkheads 8 and 9, there will be a greater distance between the batten and the 7th plank than at either bulkhead. If we did full plank widths at the bulkheads, we'd have a gap in the planking between the two. Check yours though, to make sure how much space you really need, and adjust as necessary.

At the stern, place your batten so the top of the batten follows the line of the keel between frames 12 and 13.

Photo 3: Placing the second planking batten

At the bow, place your batten so you have one half-plank width on bulkhead 2. At this bulkhead, the 8th plank should completely cover the remaining space but should be about the same width as the 7 planks above it if you've planked everything correctly to this stage. In Photo 7, you can see that you'll have an increasing number of planks at each successive frame moving aft all the way back to bulkhead 7. From bulkhead 7 aft, you'll have the same number of planks at each bulkhead for this belt. The numbers marked on the hull in this photo represent the number of planks it will take to fill out each frame - not the number of planks in the belt. The significance of this should become clear shortly.

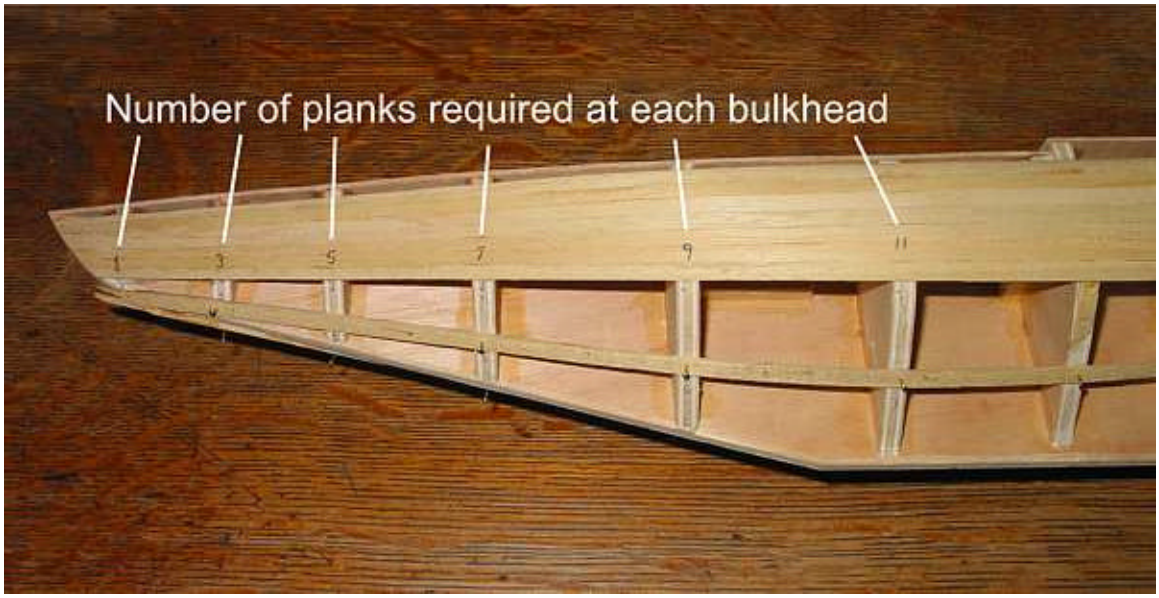


Photo 4: Second planking belt at bow

Lay the corresponding batten at the same locations on the opposite side of the hull. Once you're satisfied with the alignment, you can cut off the battens forward of frame 7. They will just be in the way as we measure the plank widths.

Marking the Planks in the Second Belt

Start at the top of the belt and measure your first plank in this belt. At bulkheads 7 thru 13, your plank width should be 1/5 of the available space between the bottom of plank 7 and the top of the batten. At bulkhead 6 and forward, however, your plank width should be a fractional part of the entire remaining space. At bulkhead 6, your plank width is 1/9th of the space between the bottom of plank 7 and the bottom of the keel. At bulkhead 5, it's 1/7th. At bulkhead 4, it's 1/5th, and so forth. Continue adding planks alternately to each side

In the next article, we'll complete the hull planking.

End of Part 2

